

Madeira, where it certainly does not occur. The present variety may have been taken for it.

*Lemniscia calva* (Lowe) race *veterna* nov. Shell 11 mm. max. diam., sometimes as small as 9.5 mm. Pleistocene fossil in the beds east of Caniçal, Madeira, common. It is not certain that *calva* belongs to *Lemniscia*. Paiva's *galeata* is congeneric with *calva*. In the Norman collection at the British Museum, specimens of *calva* are labeled *galeata*.

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NOTES ON THE NAIAD FAUNA OF THE UPPER MISSISSIPPI RIVER.\*

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II. THE NAIADES OF THE UPPER MISSISSIPPI DRAINAGE.†

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BY N. M. GRIER AND J. F. MUELLER.

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While it was the original intention to limit this list to those species actually found in the Mississippi river above its junction with the Ohio, the fullest consideration of the topic has led us to include all species authentically reported from the entire Upper Mississippi Drainage. The larger number of the listed species were collected while the writers were engaged in Mussel Survey and Appraisal work for U. S. Bureau of Fisheries in part of that region during the summer of 1920. The remaining species in the list have been obtained by the rechecking of the available literature dealing with or bearing upon the Naiades of this region as indicated in the accompanying bibliography. Species having an apparently doubtful or accidental record have been omitted. The nomenclature used is that recently formulated by Ortmann and Walker (12), but for convenience there is also added the equivalents of the different species in the synonymy of Simpson. (14)

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## Family MARGARITANIDÆ Ortmann.

1. *Margaritana monodonta* Say.

Simpson—Illinois and E. Iowa. Similarly reported by Baker (1), and Call (3), from the same regions. We did not find it above this region.

## Family UNIONIDÆ (D'Orbigny), Ortmann.

## Sub-Family UNIONIDÆ (Swainson), Ortmann.

2. *Quadrula pustulosa* (Lea).

Simpson—entire Mississippi drainage. Common. Wilson and Danglade (18), St. Croix drainage.

3. *Quadrula pustulosa prasina* (Conrad)=(var. *schoolcraftensis* Lea)

Geiser (5), and Call (3), report this shell from Iowa. We did not encounter it north of there. Reported by Lapham (9), from Fox River.

4. *Quadrula nodulata* (Raf.)=*Quadrula pustulata* (Lea).

Simpson—Mississippi R. and tributaries from E. Iowa south to Louisiana. We did not collect this species. It is found abundantly at Fairport, Iowa in the main river.

5. *Quadrula quadrula* (Raf.)=*Quadrula lachrymosa* (Lea).

Simpson—entire Mississippi drainage. St. Croix drainage. Casually distributed.

6. *Quadrula fragosa* (Con.).

Specimens are known from Iowa City, Iowa, Cedar River, Ia., and from the Spoon, Kaskaskia, Illinois and Mississippi Rivers, Illinois. Closely related to the preceding species. *Vide* Strode (15).

7. *Quadrula verrucosa* (Raf.)=*Tritogonia tuberculata* (Barnes).

Simpson. Mississippi drainage area generally. Red Wing, Minn. Reported from S. Minnesota by Lapham (9), and Call (3). Not common.

8. *Tritogonia nobilis* (Conr.).

Simpson reports this shell from the Red River of the North to Mississippi. We did not collect this shell, although the Bureau of Fisheries has it recorded from L. Pepin.

9. *Quadrula metanevra* (Raf.).

Simpson—Mississippi drainage area except its southern portion. Southern Minnesota (7). Red Wing. Abundant locally.

10. *Quadrula metanevra* var. *wardii* (Lea).

Reported by Simpson from Iowa.

11. *Megaloniaias gigantes* (Bar.)=*Quadrula heros* (Say).

Simpson—Mississippi drainage area generally. Rare in L. Pepin and more plentiful above than below it.

12. *Amblema costata* (Raf.)=*Quadrula undulata* (Barnes).

Simpson—Mississippi drainage area generally. Wilson and Danglade (18), St. Croix drainage. Common. Believed by H. W. Clark to be another tributary stream species.

13. *Amblema peruviana* (Lam.)=*Q. plicata* (Say).

Simpson, Upper Mississippi south to Arkansas, etc. Wilson and Danglade (18), St. Croix drainage.

14. *Fusconaja ebenus* (Lea)=*Quadrula ebenus* (Lea).

Simpson, Mississippi drainage area generally, except western portion. Apparently does not go into N. and C. Minnesota. We collected it at Red Wing, Minn. No longer common.

15. *Fusconaja flava* (Raf.)=*Q. rubiginosa* (Lea).

Simpson—entire Mississippi drainage. Wilson add Danglade (18), Red River of the North. A tributary stream species.

16. *Fusconaja undata* (Barnes).

Simpson—entire Upper Mississippi drainage. Var. *trigona* (Lea), seemed especially abundant in L. Pepin. Reported from N. and C. Minnesota. Common.

17. *Cycloniaias tuberculata* (Raf.)=*Q. tuberculata* Raf.

Simpson—Mississippi drainage area generally. This species was formerly more abundant in certain areas of the Upper Mississippi, but is now clammed out. According to Clark this is another headwater, tributary stream species.

18. *Cycloniaias granifera* (Lea)=*Q. granifera* (Lea).

Simpson—northwest to Iowa. Baker (1), found it at McGregor, Iowa. Clark reports this species from L. Pepin to Fairport.

19. *Plethobasus cyphus* (Raf.)=*Pleurobema aesopus* (Green).

Reported by Grant (6) and Holzinger (7) from Minnesota. We encountered our first specimen of it at the foot of L. Pepin. Comparatively rare and more abundant at present in the sloughs.

20. *Pleurobema cordatum* (Raf.)=*Q. obliqua* (Lea).

Reported by Baker (1) from Iowa. Specific localities are desirable. Probably more southern in distribution. Ortmann considers this species as not specifically different from *Pleurobema coccineum* (Con.).

21. *Pleurobema catillus* (Conr.)=*Q. solida* (Lea).

Simpson, Mississippi R. north to Minnesota. Collected above Red Wing. According to Wilson and Danglade (18) no "Quadrulae" are found in the Mississippi River proper above the falls of St. Anthony, a fact which has a bearing upon the distribution of all mussels of the *Quadrula* type in these regions.

22. *Pleurobema coccineum* (Con.)=*Q. coccineum* (Con.).

Simpson—entire Upper Mississippi drainage. Wilson and Clark, drainage of Red River of the North. We did not encounter it. It is apparently a small tributary species.

(*To be continued.*)

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#### RAMBLES OF A MIDSHIPMAN II.

BY P. S. REMINGTON, JR.

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After leaving Guantanamo, Cuba, the squadron headed south for the Panama Canal. We passed within sight of Jamaica but did not stop, much as I should have liked to collect there. For several days we drove steadily on, manoeuvring as we went. It was a most maddening sight to me after we had made a good day's run, to see the Admiral mount the bridge and commence sending up signals for manoeuvres which would turn us about and start us back toward Cuba. However, schedules are inflexible things in the Navy, and we must not arrive ahead of time.

At length we awoke one morning to see the white-topped mountains of Panama coming in view over the horizon, and